

AQUIFER EXEMPTION REQUEST
FOR
CLASS V INJECTION WELLS
(Authorization No. 5X2700062)

August 2008

Prepared for:
EL PASO WATER UTILITIES
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August 21, 2008

Texas Commission on Environmental Quality
Industrial and Hazardous Waste Permits Section
Waste Permits Division
Mail Code 130
P.O. Box 13087
Austin, Texas 78711-3087

Re: Submittal of Aquifer Exemption Request for Class V Injection Wells
(Authorization No. 5X2700062)

El Paso Water Utilities is applying to the Texas Commission on Environmental Quality (TCEQ) under provisions of the Texas Water Code for an Aquifer Exemption associated with the Kay Bailey Hutchison Desalination Plant and the prior authorization of five Class V (5X27) Injection Wells. A small portion of the proposed exempt aquifer extends into the state of New Mexico; therefore, an application is also being submitted in parallel to the New Mexico Environment Department (NMED). Once the TCEQ and NMED reviews and tentatively approves an aquifer exemption request, the request is sent to the U.S. Environmental Protection Agency (EPA) for approval.

Aquifer exemptions require modifications to the State Underground Injection Control (UIC) Programs. The exemptions are granted by TCEQ and NMED with concurrence from the U.S. Environmental Protection Agency (EPA) in accordance with 40 CFR Parts 144-146, 30 TAC Chapter 331, and 20.6.2.5103 NMAC. EPA has developed a document (GWPB Guidance #34) that provides guidance to EPA Regional Offices on the process for approving modifications in delegated UIC Programs, including aquifer exemptions. As stated in UIC Guidance #34, the requested revision to the Texas and New Mexico UIC Programs would be considered "Non-substantial" because (1) the TDS concentration of the proposed exempt aquifer is substantially greater than 3,000 parts per million, and (2) the formation is deep and remote.

One original and two complete copies of the application package are being delivered. A disk containing the text of the document is included in the copy marked "Original."

A Regulated Entity and Customer Reference Number (RN103778882 – El Paso Water Utilities) has previously been issued by the TCEQ and no core data information has changed. Therefore, a Core Data Form (Form 10400) is not included with the application package.

A Division of Leggette, Brashears & Graham, Inc.

Texas Commission on Environmental Quality
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If you have any questions or comments regarding the attached application package, please do not hesitate to call me at (512) 327-9640.

Sincerely,

LBG-GUYTON ASSOCIATES

A handwritten signature in black ink, appearing to read "Brad Cross". The signature is fluid and cursive, with the first name "Brad" and the last name "Cross" clearly distinguishable.

Brad L. Cross
Associate

Attachments

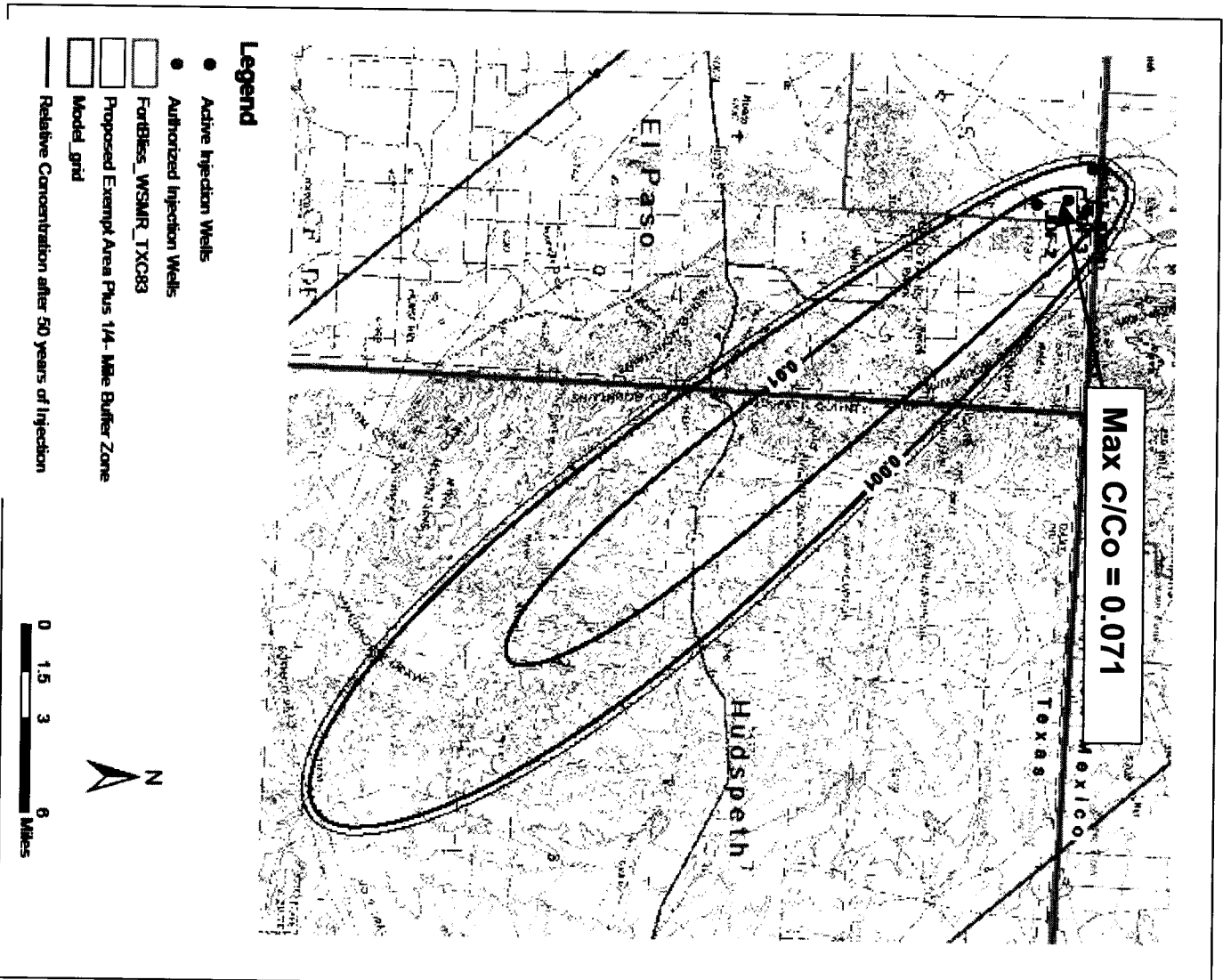
cc: Mr. William R. Hutchison, Ph.D., P.E., P.G.
Mr. John Hall, Ground Water Quality Bureau, New Mexico Environment Department

Discussion of EPWU Aquifer Exemption Application

April 29, 2009

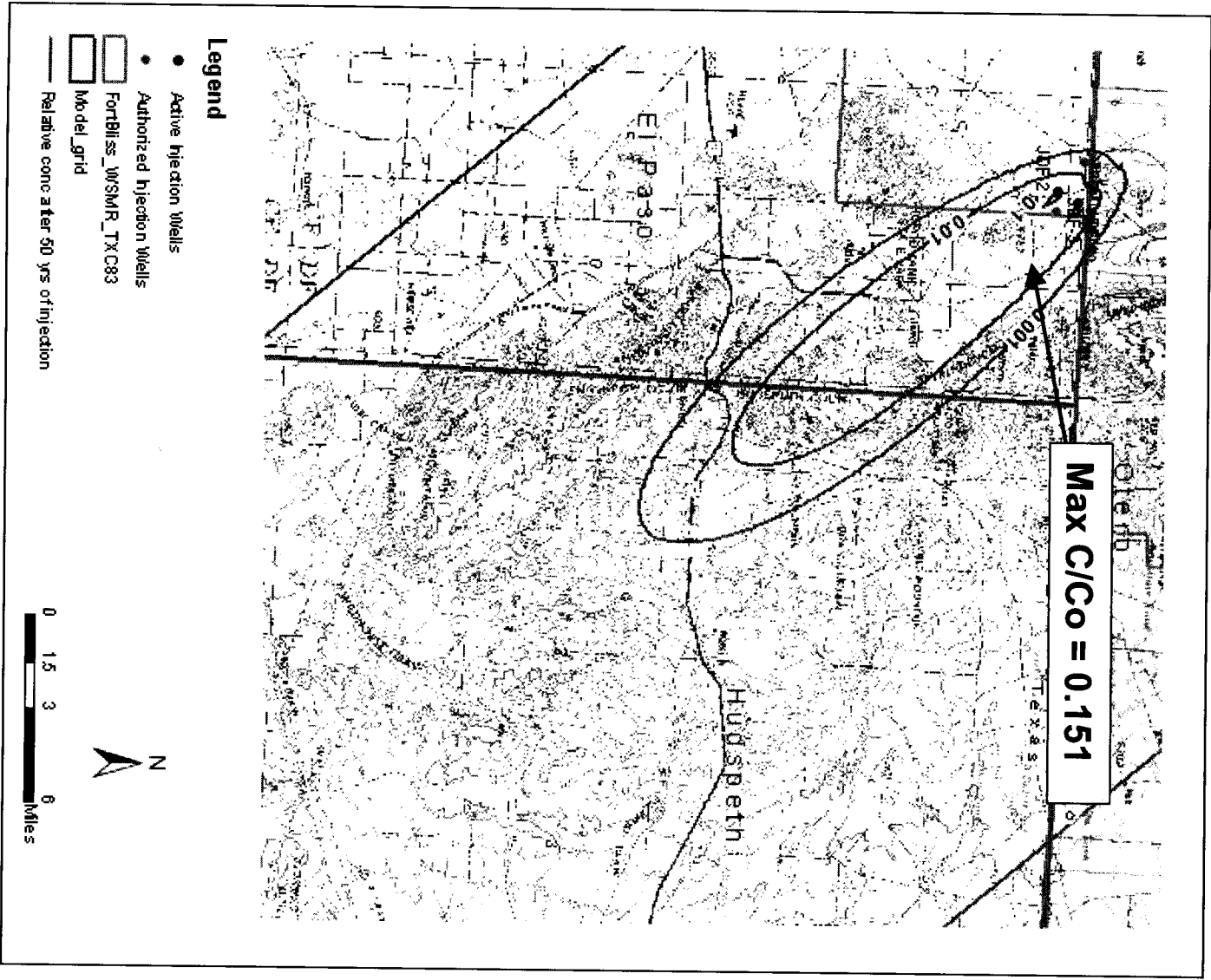
Hydraulic Gradient

- Sensitivity analysis
- Impact of uncertainty
- Three scenarios
 - 0.007 ft/ft (from permit application) *worst case for TX*
 - 0.003 ft/ft (about half of application)
 - 0.0 ft/ft (no regional flow gradient) *worst case for NM*



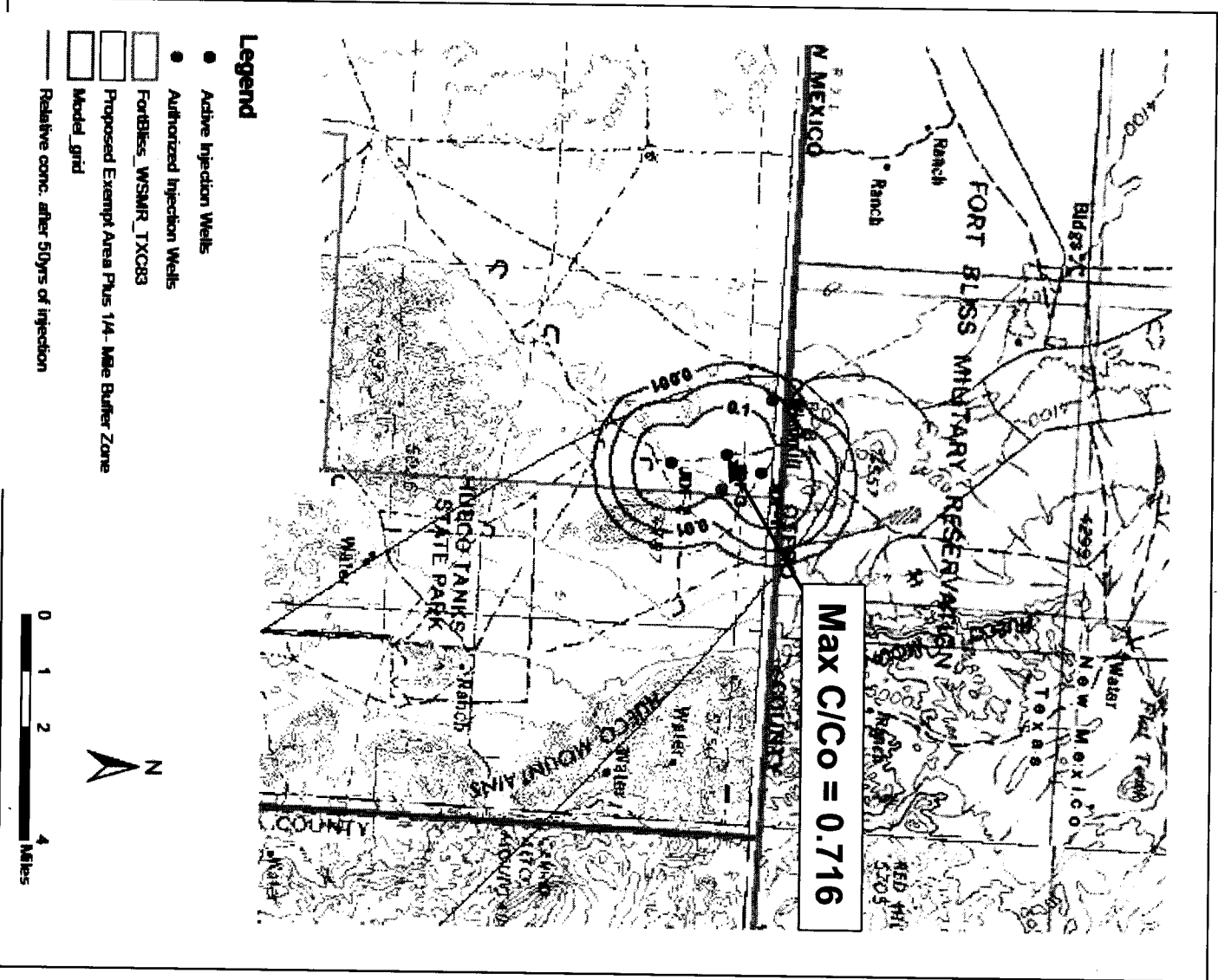
- Relative concentration after 50 years of injection
- Hydraulic Gradient = 0.007 ft/ft
- Presented in Application
- Maximum relative concentration is less than 1.0 because of aquifer thickness and dilution of passing groundwater

not of injection

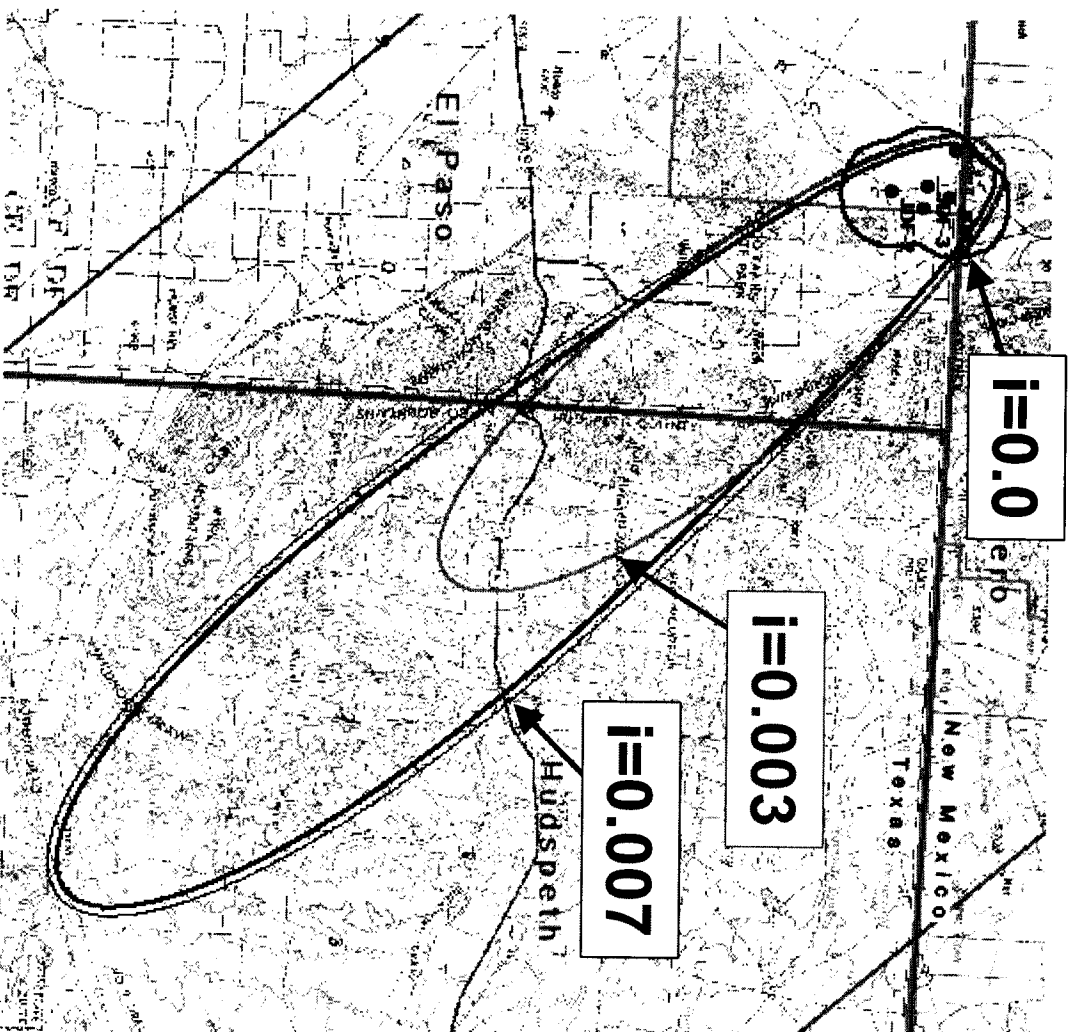


- Relative concentration after 50 years of injection
- Hydraulic Gradient = 0.003 ft/ft
- Maximum relative concentration is about double the previous slide due to reduced gradient and thus less dilution
- Injected mass is equal to previous scenario

Handwritten notes:
 - 8000 ft C/Co = 4
 - 1000 ft C/Co = 1
 - 100 ft C/Co = 0.1
 - 10 ft C/Co = 0.01
 - 1 ft C/Co = 0.001



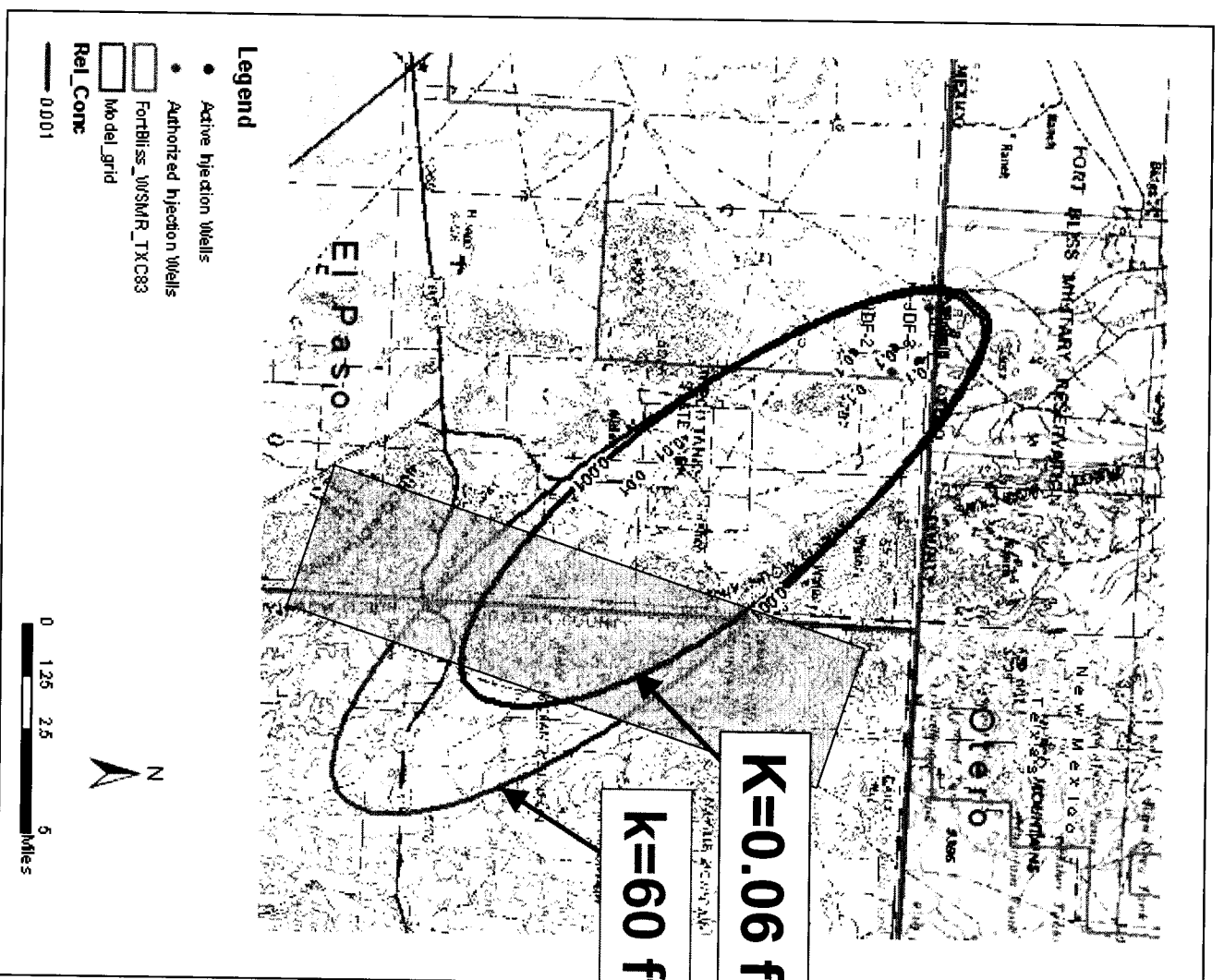
- Relative concentration after 50 years of injection
- Hydraulic Gradient = 0.0 ft/ft
- Maximum relative concentration is much closer to 1.0 because there is no passing groundwater
- Injected mass is equal to previous scenarios



- Relative concentration after 50 years of injection
- Hydraulic Gradient = 0.0, 0.003, 0.007
- Injected mass is equal in all scenarios – but low gradient scenarios have higher injectate concentration near injection wells

Geologic Barrier

- Sensitivity analysis
- Impact of uncertainty
- Incorporate a low permeability zone



- Relative concentration after 50 years of injection
- Hydraulic Gradient = 0.003
- Lower conductivity zone along Hueco Mountains

A bar chart showing the Injectate Concentration (mg/L) on the Y-axis versus Year on the X-axis. The Y-axis ranges from 0 to 25,000 mg/L with major grid lines every 5,000 mg/L. The X-axis ranges from 0 to 50 years with major ticks every 10 years. The concentration starts at approximately 8,000 mg/L in Year 0 and increases steadily to approximately 21,000 mg/L by Year 50.

Year	Injectate Concentration (mg/L)
0	8,000
10	10,000
20	14,000
30	17,000
40	20,000
50	21,000



- **Comparison of actual concentration versus relative concentration of 0.001 (as shown in permit application) after 50 years of injection**

